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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,965	02/09/2004	Afshin Momtaz	BU3368	8766
7590 Brake Hughes PLC C/O Intellevate P.O. Box 52050 Minneapolis, MN 55402		05/09/2007	EXAMINER DEPPE, BETSY LEE	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 05/09/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/774,965	Applicant(s) MOMTAZ, AFSHIN	
	Examiner Betsy L. Deppe	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/3/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Based on page 2, lines 1-2 and 29-31 and page 3, lines 7-11 (i.e. "typical" or "conventional" circuits), Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the frequency acquisition loop that adjusts the frequency between the extracted clock signal and the binary signal (see claims 5, 6, 13, 14, 18, 19, 22, 23 and 26) must be shown or the feature(s) canceled from the claim(s). In Figure 5, the loop that includes the phase and frequency detector 505 seems to adjusting the frequency between the extracted clock signal and a reference clock, not the binary signal (i.e. "Data"). (See also, page 8, lines 14-25) No new matter should be entered.

This objection may be overcome by amending "frequency of the binary signal" to "frequency of **a reference signal**" in claims 5, 6, 13, 14, 18, 19, 22, 23 and 26.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing

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figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Corresponding to the drawing objection in paragraph 2, the disclosure is objected to because the detailed description does not describe a frequency acquisition loop that maintains the frequency between the extracted clock signal and **the binary signal** (see claims 5, 6, 13, 14, 18, 19, 22, 23 and 26). If the claims are amended to use the frequency acquisition loop to maintain the frequency between the extracted clock signal and **a reference signal**, this objection will be withdrawn.

Appropriate correction/clarification is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The detailed description does not describe how the equalization coefficient is modified to synchronize the frequencies of the extracted clock signal and the binary signal, as recited in claim 25. Based on Figure 5, the synchronization does not seem related to or affected by the equalization coefficient.

7. Dependent claim 26 is rejected for the same reasons as claim 25.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5, 9-13, 18, 21, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in the present application in view of Tomita (US Patent No. 6,931,088 B1).

10. With regard to claims 1-4, 9-12, and 21, the admitted prior art in the present application discloses the claimed invention (see Figure 3; page 1, lines 23-33; and page 3, lines 7-27) except for generating the extracted clock signal from the equalized data.

Tomita discloses using an equalized signal to generate the clock for the retimer. (See Figures 1 and 3) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Tomita and the admitted prior art in order to accurately synchronize the clock signal and recovered signal.

11. With regard to claims 5, 13, 18 and 22, assuming that the frequency acquisition loop maintains a relationship between the frequency of the extracted clock signal and a reference signal (see paragraph 2 above), the admitted prior art in the present application in view of Tomita discloses the claimed invention. Figure 5 discloses a "conventional clock and data recovery circuit" (see page 7, lines 29-30) with a frequency acquisition loop and a phase acquisition loop.

12. With regard to claim 24, the admitted prior art in the present application in view of Tomita discloses the claimed invention since it is implicit/inherent that an equalization coefficient must be applied to the decision feedback equalizer upon startup.

13. Claims 5-8, 13-16, 18-20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Tomita as applied to claims 3, 11, 17 and 21, respectively, above, and further in view of Kim et al. (US Patent No. 6,670,853 B2).

14. With regard to claims 5, 13, 18 and 22, the admitted prior art in view of Tomita discloses the claimed invention except for (a) a frequency acquisition loop for maintaining a relationship between the frequency of the extracted clock signal and the frequency of the binary signal; and (b) a phase acquisition loop for maintaining a

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relationship between the phase of the extracted clock signal and the phase of the binary signal.

Figure 1 of Kim et al. discloses a frequency acquisition loop (110) and a phase acquisition loop (130). (See also column 1, lines 20-26 and column 3, lines 46-67) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Kim et al. with that of the admitted prior art in view of Tomita in order to reduce jitter and locking time. (See Kim et al., column 3, lines 19-21)

15. With regard to claims 6, 14, 19 and 23, the admitted prior art in view of Tomita and Kim et al. also discloses a lock detector. (See 120 in Figure 1 of Kim et al.)

16. With regard to claims 7 and 15, the admitted prior art in view of Tomita and Kim et al. also discloses a multiplier. (See Figures 2 and 3 of the present application)

17. With regard to claims 8, 16 and 20, the admitted prior art in view of Tomita and Kim et al. also discloses the claimed invention since it is implicit/inherent that an equalization coefficient must be applied by the multiplier upon startup.

Double Patenting

18. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

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F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

19. Claims 1-4, 9-12, 17 and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 7-10, 12 and 22, respectively, of copending Application No. 10/774,725. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in copending Application No. 10/774,725 encompass the claimed limitations. It is well settled that omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 163 USPQ 184 (CCPA 1963). Also note *Ex parte Rainu*, 168 USPQ 184 (CCPA 1969). Omission of a reference element whose function is not needed would be obvious to one of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references disclose a clock and data recovery circuit with a frequency acquisition loop that maintains a frequency relationship between a reference signal and the extracted clock signal as shown in Figure 5 of the present application: Cao (US Pub. No. 2003/0053576 A1); Rizzo (US Patent No. 4,787,097); and Nakamura (US Patent No. 6,873,669).


Tonietto et al. (US Patent No. 6,807,225 B1) discloses a frequency acquisition loop that maintains a frequency relationship between a data signal and the extracted clock signal.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Betsy L. Deppe
Primary Examiner
Art Unit 2611

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